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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,050	02/27/2006	Yiping Fan	US03 0282 US2	5345
65913	7550	02/26/2009		
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			EXAMINER LE DINH THANH	
			ART UNIT 2816	PAPER NUMBER
			NOTIFICATION DATE 02/26/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary

Application No.

10/570,050

Applicant(s)

FAN, YIPING

Examiner

DINH T. LE

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2008.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9-18 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-18 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-846)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

FINAL REJECTION

The rejection under 35 USC 112, second paragraph, has been withdrawn in view of the arguments presented in the outstanding Amendment.

Claim Rejections

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-6, 9-12, 14-18, 21 and 24-25 are rejected under 35 USC 103 (a) as being unpatentable over Hwang et al (US 6,678,511).

Regarding claims 1 and 11, Hwang et al discloses in Figures 3-9 a filter circuit comprising:

- at least two cascading filters (10, 20 in Figure 7) of different orders and having passband ripples with respect to signal gain of the respective filter at frequencies in a passband of the respective filter and nearly equal in magnitude and out of phase with respect to each other in order to minimize a passband ripple in the composite filter, see lines 64-67 of column 4 in which the filter (20) is nine stage band pass filter and lines 5-25 of column 5 in which the filter (10) is designed in favor of two or four stages. Thus, the orders of the filter (10) is different from the orders of filter (20).

Regarding claims 2 and 12, wherein characterized in that the magnitude of the passband ripples in the at least two cascading filters (10, 20) are equal.

Regarding claims 4 and 14, wherein at least one of the at least two cascading filters (10, 20) comprises an analog filter.

Regarding claims 5 and 15, wherein in that at least one characteristic of the at least two cascading filters (10, 20) is selected to minimize the passband ripple in the composite filter.

Regarding claims 6 and 16, wherein the at least one characteristic comprises the order of the at least two cascading filters (10, 20), see lines 5-25 of column 5.

Regarding claims 9 and 19, wherein the at least one characteristic comprises a bandwidth of the at least two cascading filters (10, 20).

Regarding claim 10, wherein the filter (20) is the band pass filter so that it comprises a stopband attenuation of the at least two cascading filters (10, 20), see Figure 6c.

However, Hwang et al fail to suggest that the orders of the two cascading filters difference in value by exactly one as called for in claims 1 and 11, one filter is a third order while another filter is the fourth order as called for in claim 21, the combined ripples is less than .01dB at around 7.8 MHZ as called in claim 21. For example, Hwang suggests in Figures 3-9 to use the second filter (10) having the order which is different from the order of the main filter (20) for cancelling the ripples of the main filter (2). A skilled artisan recognizes that the ripples of a predetermined filter is determined by the type and the order of this filter. For example, the elliptic filter generates higher ripples than the Butterworth filter and the first order filter

generates less number of ripples in the passband than the third order filter. Thus, in order to cancel out the ripples of the main filter, the order and the type of the second filter should be selected depending upon the order and the type of the main filter. Thus, since the circuit of Hwang et al has the same structure as the claimed circuit, selecting the order of the second filter to have a different order in an optimum value exactly one to have a combined ripple less than. 1 dB at 7.8 MHZ is considered to be as a matter of a design expedient for an engineer depending upon the particular app any criticality, it would have been obvious to a person having skill in the art at the time the invention was made to select the order of second filter (10) of Hwang to have order difference of the two filters (10, 20) in the optimum value of exactly one and the combined ripple as claimed for the purpose of accommodating with the type and the orders of the main filter of a predetermined system.

Claims 3, 13 and 22-23 are further rejected under 35 USC 103 (a) as being unpatentable over Hwang et al (US 6,678,511) in view of Chan et al (US 6,920,471).

Hwang et al discloses a filter circuit with all of the limitations of the claimed invention as stated above but does not disclose that at least one of the at least two cascading filters comprises a digital filter such as a finite response filter.

Nevertheless, Chan et al suggests in Figure 3 a circuit comprising a digital filter (100) coupled to an analog filter (12) for compensating for the absolute sampling and digital delays associated with a matching circuit. See the Abstract.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the digital filter as suggested by Chan et al in the circuit of Hwang et al for

the purpose of compensating for the absolute sampling and digital delays associated with a matching circuit. Also, it is well known in the art that the digital filter performs the same function as the analog filter with the exception of that the digital filter handles digital input signal while the analog filter handles the analog input signal. Thus, selecting the digital signal for the circuit of Hwang et al to handle the digital input signal is considered to be a design expedient for an engineer for an engineer depending on an a particular application that would have been obvious at the time of the invention.

Response to Applicant's Arguments

The applicant argues that Hwang fails to teach that the orders of the filters differ by exactly one. Hwang only discloses a few exact implementations and does not otherwise disclose a range (leaving an infinite number of possibilities for the skilled artisan to experiment with), thus there is not any evidence of an overlapping range. The only concrete examples provided by Hwang show filters that differ by significantly more than one. It is not logical to apply a routine experimentation standard that could be similarly applied to exclude an infinite number of possible combinations of cascaded filters when Hwang discloses only a select few working examples. The arguments are not persuasive. Since the second filter of Hwang is use to cancel the ripples within the passband of the filter, the order number of the second filter of Hwang obviously is determined by the number of ripples in the passband of the first filter. Thus, selecting the optimum order number for the second filter of Hwang to have the order difference of one as claimed for the purpose of cancelling all of ripples within the passband of the first

filter is considered to be a matter of a design expedient for the engineer depending upon the ripples of the first filter that would have been obvious at the time of the invention.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Lincoln Donovan, can be reached at (571) 272-1988.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/DINH T. LE/

Primary Examiner, Art Unit 2816